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ABSTRACT

This paper discusses the question of whether, in a multilingual society, the child's first or second language is best as a language of instruction in primary school. Reviewing eight case studies from seven countries in which initial primary schooling was given either in the second or first language, the discussion compares achievement in reading and language in both languages and describes achievement in content subjects, especially arithmetic. Case studies from the Philippines, Ireland, and Canada report the use of a second language as the language of instruction, while studies from Mexico, Nigeria, Sweden, and the United States report use of the first language. It is concluded that, depending on the interrelated characteristics of each situation, answers must be found on a case-by-case basis. Such characteristics include the linguistic and cognitive development of the child in his or her first language, the attitudes of parents toward the language chosen for the school, and the status of the languages in the wider community. In terms of these characteristics, situations are described in which the best choice for initial instruction might be either the child's first or second language. These descriptions are followed by a discussion of issues raised in a paper (1980) devoted to education sector policy and by a series of recommendations for World Bank staff. (Author/RH)

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The Use of First and Second Languages in Primary Education: Selected Case Studies

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Staff Working Paper No. 504

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THE USE OF FIRST AND SECOND LANGUAGES IN PRIMARY EDUCATION:
SELECTED CASE STUDIES

This paper addresses the question: In a multilingual society, what is the best choice of language as the initial language of instruction for the child in primary school? Is it a second language, or is it the first language? Which will result in greater achievement in primary school? Which will result in greater access to secondary school?

The paper reviews eight case studies in seven countries in which initial primary schooling was given either in the second language or in the first. It compares achievement in reading and language in the second and first language, and achievement in content subjects, especially arithmetic.

On the basis of these studies, it is concluded that there is no one best answer to the question of which language to choose. The answers must be found on a case-by-case basis. They depend on the interrelated characteristics of each situation. These characteristics include the linguistic and cognitive development of the child in his first language, the attitudes of parents towards the language chosen for the school, and the status of the languages in the wider community.

In terms of these characteristics, situations are described where the best choice for initial instruction might be the child's second language, and where it might be the first language. These situations are followed by a discussion of issues raised in the Education Sector Policy paper (1980) and a series of recommendations for Bank staff.

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Summary

1. This paper addresses the issues of language and primary education which were raised in the Education Sector Policy Paper of the World Bank (April, 1980). The paper aims to answer the following questions: In a multilingual society, what is the best choice of language as the initial language of instruction for the child in primary school? Is it the second language, which may be the regional or national language deemed necessary for individual and national survival and development? Or is it the first language, which is the language the child knows and through which he can most easily learn? Which will result in greater achievement in primary school? Which will result in greater access to secondary school?

2. The paper reviews the literature of the last 20 years, namely eight case studies in seven countries in which children learned either first through a second language or first through their first language. It compares achievement in reading and language in the second and first languages, and achievement in content subjects, especially arithmetic.

3. On the basis of these studies, it is concluded that there is no one best answer to the question of which language to choose. The answers must be found on a case-by-case basis. They depend on interrelated characteristics of the individual situation: the cognitive and linguistic development of the child in his first language, the attitudes and support of the parents in terms of the languages chosen for school, and the status of the languages, both first and second, in the wider community.

4. Thus, on the one hand, using the second language for initial primary education may be appropriate in situations where the child's first language has developed to the level where he has the cognitive and linguistic prerequisites for the acquisition of literacy skills,

where the parents freely choose instruction in the second language, and where the wider community views the first language of the child as having a status that is as high as or higher than that of the second language. On the other hand, using the first language for initial primary education may be appropriate in situations where the child's first language has not developed to the level where he has the cognitive and linguistic prerequisites for the acquisition of literacy skills, where the parents freely choose and work for instruction in the first language, and where the wider community views the first language of the child as having a status which is much lower than that of the second language.

5. The Education Sector Policy Paper issues are discussed in the context of the case studies. Five points are made:

- (1) Emphasis on local languages does not limit access of specific individuals and groups to either advanced education or the international body of knowledge if these individuals and groups have had the opportunity to develop their first language before, and then along with, the development of the second language.
- (2) Literacy is more readily acquired in the language the learner already speaks than in a language he does not yet know.
- (3) Competence, in terms of literacy, is more easily acquired in a second language if the student is already literate in his first language.
- (4) Teaching for literacy in a second language is unlikely to succeed without prior oral training of the students in the new language.

- (5) Bilingual programs do not retard development of children in their native language if either the school or the community provides support and stimulation for the continued development of the native language.

6. On the basis of the research presented, recommendations are made to Bank staff. They are urged

- (1) To encourage borrowers to realize that there is not one universal best answer to the language problems of multilingual countries.
- (2) To investigate all aspects of the language situation early on in the project cycle.
- (3) To encourage borrowers to think in terms of helping children develop their first language in order to give them the cognitive basis for eventually learning the second language.
- (4) To help borrowers build parental support, when necessary, for instruction through the first language.
- (5) To encourage borrowers to think in terms of using the first language as the medium of instruction when children come from situations where their first language does not enjoy high status in the wider community.
- (6) To build in an evaluation component for the language aspects of a project.
- (7) To study the costs of various language choices.

It is hoped that by following these recommendations the design and implementation of Bank projects will be enhanced and the eventual result will be improved learning for the children in multilingual countries.

THE USE OF FIRST AND SECOND LANGUAGES IN
PRIMARY EDUCATION: SELECTED CASE STUDIES

I. General

1. The Education Sector Policy Paper of the World Bank (April, 1980) referred to several areas of concern in matters of language and education. They were: (a) the relationship between emphasis on local languages to the individual's chances for further education and to access of specific groups or countries to the international body of knowledge; (b) situations in which literacy may be most readily acquired, in which competence in a second language may be most easily acquired, and in which literacy in a second language may be most easily acquired; and (c) the effect of bilingual education programs on the development of children in their native language. (p. 20).

Purposes and Methodology of this Paper

2. This paper will examine the literature of the last 20 years, specifically case studies of children learning initially in school through either a second language or their first language. It aims to shed some light on the above areas of concern and to present some general conclusions and recommendations in such a way that staff members of the Bank working on education projects will be able to broaden their understanding of the issues involved and thus improve the design and implementation of Bank projects.

Key Question

3. The key questions addressed are: In a multilingual society, what is the best choice of language as the initial language of instruction for the child in primary school? Is it a second language, or is it the first language? Which will result in greater achievement in primary school? Which will result in greater access to secondary school?

4. Is the best choice the child's first language? Our common sense tells us that the first language is the most efficient medium of instruction. Our scholars tell us that it has "input clarity, meaning that educational content is not dampened or filtered through an unknown or partially known language." (Lambert and Sidoti, 1981). Or is the best choice the second language? Most of us believe that children learn languages without difficulty. Perhaps we should educate children in a really useful, world language from the beginning. Or at least the national language which may not be the first language but which the children will eventually need to know in order to function as citizens. Should we waste precious time and money educating children in languages spoken by relatively few people?

Definitions of Terms

5. Before we proceed further, let's pause to define terms which will be used in this paper. Case studies refer to empirically-based research on primary education of children in multilingual settings.

6. A mother tongue is the first language used by the child. It is also known as the native language, the home language, or the first language.

7. An other tongue is a term used in contrast to mother tongue. It is synonymous with second language.

8. A second language is a language learned in addition to the first language. In some cases, it will be chronologically the third or fourth language learned.

9. A vernacular language is a language spoken by a subgroup in the country and not the dominant language of any country. In many cases, it will be synonymous with mother tongue or first language.

10. An indigenous language is a local language. It is most often used in the literature on Africa.

11. A national language is the language which is officially recognized as the principal language of the country and which is promoted as the dominant language for the purpose of strengthening national identity and unity.

12. A language of wider communication, also called a world language, is a language of world-wide use. It is also called a metropolitan language by some writers. For the purposes of this paper, it is a European language--English, French, or Spanish.

Criteria for Selection of Case Studies

13. I have used three kinds of criteria for selection of the case studies: general criteria, frequency of mention in the literature, and good quality of research design.

14. The general criteria refer to focus, level of instruction, area of curriculum, and geographic representation. The focus is on the comparative effectiveness of initial instruction in either the first or the second language. The level of education is that of the primary school--the first six years of formal education. The area of curriculum is reading and language, but some studies look at arithmetic and other subjects as well. The geographic representation is as wide as possible.

15. The studies are all mentioned frequently in the literature. The Philippines Rizal study (1967) is often cited as an example of success of initial instruction in a second language. For many years the Irish study (1966) was offered as evidence of the deficit and retardation said to accompany bilingual education. The Canadian St. Lambert study (1972 on) is the most well-known. Begun in 1965 and still continuing, it is the most extensive and the most thorough available. It is the quintessence of successful initial instruction in a second language.

16. The Mexican Highlands study (1966) offers evidence of the success of initial instruction in the first language. This study was influential at the time of legislation for bilingual education in the United States. It has served as a prototype for other studies, namely the recently published study on the Rock Point Navajo School in the United States. (1980). The Nigerian Six-Year Primary Project (1970 on) is one of the few studies from Africa. It demonstrates the possibilities of extended first language instruction. The Swedish study, specifically the Skutnabb-Kangas and Toukomaa study for UNESCO of 1976, has stimulated a number of important ideas, namely the impact of age of exposure, previous schooling, and development in the first language on learning a second language, the notion of semilingualism, and Cummins' interdependence and threshold hypotheses. All of these concepts will be discussed later in this paper. The other Swedish study, that of the Sodertalje Language Shelter (1979) is included because it offers additional evidence for the conclusions of the Skutnabb-Kangas and Toukomaa study. The final study selected, that of the Rock Point Navajo School (1980), is one of the very few in the United States that has evaluated children over the full six years of primary school. This study illustrates the success of initial instruction through the first language.

17. The eight studies represent research of high quality. There is an adequate sample of pupils. Care was taken in assignment of pupils to experimental and control groups. Pretesting was done to establish baseline data against which to measure changes. There was control for factors, such as intelligence and socioeconomic status, which might bias program outcomes. Tests were used which were as valid and reliable as possible. Appropriate statistical methods were used for analysis. Not all of the studies have all of these design characteristics, but all of them have most of them.

Significant Omissions

18. There are several countries which are not discussed because I could not find appropriate case studies. Examples are Haiti, Indonesia, and a francophone African country.
19. In 1979, Haiti legislated Creole, along with French, as the official language of instruction. In 1980, Creole was introduced into the primary schools. Evaluations of past projects are incomplete. Evaluation of the new program is not available. (Valdman, 1980).
20. Indonesia has been involved in language planning for years, beginning with the Japanese era of the 1940s and continuing since independence in 1949 when Bahasa Indonesia was generally accepted as the national language. In spite of this lengthy language planning, and several shifts of language policy and implementation, and in spite of the hundreds of mother tongues used in the country, there is not a single case study available which compares instruction in the national language with instruction in the mother tongue. (Rubin, 1980).
21. In most of the francophone African countries, French is still the only official language. In a few of these countries there have been some efforts in terms of vernacular language development and use in the schools. (Weinstein, 1980). Nevertheless, I could not locate any studies comparing the relative success or failure of such instruction.
22. More important than the countries not discussed is the matter of cost. All of these studies focused on relative pupil achievement; none mentioned relative cost. For Bank staff, this is a significant omission, indeed.

II. Case Studies in Which Children Learned First Through
a Second Language as the Medium of Instruction

The Philippines: Rizal Study

23. The official languages of the Philippines are Pilipino (also called Tagalog) and English. Pilipino is considered the national language. Only 25% of the people speak it as a mother tongue, but 60% of the people can understand it. In addition, there are said to be from 70 to 150 mutually unintelligible vernacular languages. Most of these are spoken by relatively few people, but one or more of the eight major vernaculars are understood by 90% of the population.

24. For many years, English was the sole medium of instruction in the schools, with Pilipino taught as a subject. In 1957, the vernaculars began to be used in grades 1 and 2, with English as the only medium of instruction from grade three on.

25. In 1975, a new bilingual policy was announced. It called for the separate use of Pilipino and English as media of instruction in definite subject areas, beginning in grade 1. English was to be the medium of instruction for science and mathematics, Pilipino for everything else. The vernaculars were to continue, if necessary, as auxiliary media in grades 1 and 2.

26. In 1960-1966, well before the latest policy change, a large language study, under the supervision of F.B. Davis, was conducted in the Rizal province, near Manila. The study examined 1500 Tagalog-speaking children who received varying amounts of instruction in Tagalog and in English.

27. There were two major purposes for the study:
- (1) To determine how much time should be allowed for aural-oral activities in English in grades 1 and 2 before formal reading is introduced.
 - (2) To discover the relative effectiveness of introducing English as the medium of instruction at three different points in the elementary grades. (Davis, 1967).

28. Five groups, of 300 children each, were identified. Each group had similar facilities and teachers, and contained a similar range of types of economic communities. The groups were assigned at random to one of five programs:

<u>Group</u>	<u>Began English Reading In Grade</u>	<u>Began English Medium of Instruction in Grade</u>
1	1	1
2	1	3
3	1	5
4	2	3
5	2	5

(The reader should note that unless otherwise specified the instruction was in Tagalog.)

29. The following background information was collected:

Chronological age in months for each child at
beginning of grade 1
Days in school in grades 1-3
Teacher-background index for grades 1-3
School-facilities index as of grade 1
Pupil socio-economic index as of grade 1

30. At the start of grade 1, the children were given three tests to establish a baseline against which change could be measured. These tests were

Tagalog Picture-Vocabulary Test
English Proficiency Test; Oral Expression
Language Aptitude Test

31. Part I of the study explored the first purpose--determining the best time for the introduction of reading in English to children who were being otherwise taught in their first language, Tagalog. Groups 2, 3, 4, and 5 were used--972 children in all. The groups were tested at the end of grades 1, 2, and 3 on different versions of the English Proficiency Test, a test which contained the following subtests:

- Listening Comprehension
- Oral Expression
- Reading Comprehension
- Written Expression

32. At the end of grade 3, the four groups were compared to determine the effect of the different starting points for English reading (the start of grade 1 or the start of grade 2). Mean scores of the four groups were compared, taking into account the use of English as the medium of instruction in grade 3 for two of the groups (groups 2 and 4), and taking into account the background factors listed in paragraphs 29 and 30 above. Statistical procedures included multiple regression analysis and analysis of covariance.

33. The results of Part I showed that it makes little difference whether first reading in English is done in grade 1 or in grade 2. Proficiency in the four important aspects of English taught as a second language in grades 1-3 is likely to be about the same whether reading activities in English are introduced at the start of grade 1 or at the start of grade 2.

34. Part II of the study explored the second purpose--determining the effect on the school achievement of Tagalog-speaking children when the amount of English-medium instruction was varied. These groups were used:

Group 1	English in grades 1-6
Group 2	Tagalog in grades 1-2 and English in grades 3-6
Group 3	Tagalog in grades 1-4 and English in grades 5-6

The groups were tested at the end of grade 4 and at the end of grade 6. (324 children at end of grade 4 and 491 children at end of grade 6). Thirteen tests were administered (see Annex A).

35. For each set of tests mean scores were compared, taking into account the background factors listed in paragraphs 29 and 30. Statistical procedures included multiple regression analysis and analysis of covariance.

36. The results at the end of grade 4 showed that variation in language used as medium of instruction probably affected subject-matter achievement, but not by spectacular amounts.

37. The results at the end of grade 6 were more conclusive. They were

- (1) English proficiency is directly related to the number of years in which it is used as a medium of classroom instruction.
- (2) The average level of literacy in Tagalog is not closely related to the number of years in which it has been used as a medium of classroom instruction.
- (3) At the end of grade 6, the group that had used English as medium of instruction in grades 1-6, displayed, on the whole, the highest level of subject matter achievement whether the tests were given in English, in Tagalog, or bilingually. The differences between achievement levels of pupils in groups 2 and 3 were small and inconsistent.

38. These results support the common sense notion that more is more, especially for the second language--that additional time of instruction in the second language will increase proficiency in that language. These findings, as a simple causal proposition, are disputed by some of the other studies in this paper, namely the studies in Mexico, Sweden, and the United States.

39. What other considerations, other than the choice of the language of instruction, could have influenced the outcome of the study? The children came from the dominant language group of the country. It can be assumed that their parents supported and encouraged that language in the home and elsewhere. It can also be assumed that the parents were eager for the children to do well in English, and actively encouraged school attendance and achievement. The situation is similar to the St. Lambert situation that will be described later on.

Ireland: Macnamara's Study

40. Most persons in Ireland speak English as their mother tongue. Only 12% of the people in Dublin and 7% outside of Dublin speak Irish in the home according to the 1975 census figures.

41. After the founding of the Irish Free State in 1921, the restoration of Irish became one of the principal aims of Irish education. Laws were passed which gave preference to persons literate in Irish, and Irish was made a compulsory school subject throughout primary and secondary school. (Downing, 1978). In the late 1930s, there were almost 300 Irish-medium schools, where native English-speaking children were instructed through Irish. This number has dwindled considerably so that at present there are only 18 Irish-medium schools. However, one-third of these have been started in the last ten years, and there seems to be a renewal of interest among parents, especially in Dublin, of educating children in Irish (Cummins, 1978).

42. In 1961, Macnamara surveyed 1,084 English and Irish-speaking children in the fifth grade of the Irish national schools. His purpose was to assess the effect of the program for teaching Irish on the Irish children, at a time when 42% of the time in the first years of school was spent on instruction in Irish (Macnamara, 1966).

43. There were two main objectives of the study:
- (1) To discover the effect on arithmetical attainments of teaching arithmetic through the medium of Irish to children from English-speaking homes.
 - (2) To discover the effect of the program for reviving Irish in national schools on the level of English attainment of children from both English and Irish-speaking homes.

44. Macnamara worked with six groups of fifth-grade children in 119 schools. The schools were matched for size, number of boys and girls, teacher-pupil ratio, rural and urban locations, and number of trained teachers in order to provide a basis for intergroup comparisons and in order to conform as closely as possible to the population of national schools. The groups were

<u>Group</u>	<u>Arithmetic Taught in</u>	<u>Other subjects Taught in</u>	<u>District</u>
1	English to all grades, including Kindergarten	English, except Irish as subject	English-speaking
2	Irish to Kindergarten only	English, except Irish as subject	English-speaking
3	Irish to Kindergarten and grade 1	English, except Irish as subject	English-speaking
4	Irish from Kindergarten to grade 3	English, except Irish as subject	English-speaking
5	Irish from Kindergarten to grade 5	English, except Irish as subject	English-speaking
6	Irish to all grades, including Kindergarten	Irish, except English as subject	Irish-speaking

45. Data were collected on three areas which might influence the achievement of the children:

- (1) Nonverbal reasoning ability of the child, as assessed by the Jenkins Scale of Nonverbal Reasoning, and given with Irish instructions when necessary.
- (2) Socioeconomic status of the child, as assessed through means of a questionnaire answered by the child with help from the teacher, and translated into Irish when necessary.
- (3) Teaching skill of the teachers, as assessed by supervisors' ratings.

46. Part I of the study explored the first purpose--determining the effect on arithmetical attainments of teaching arithmetic through Irish. Groups 1-5 were used--929 children in all.

47. In March 1961, the following tests were administered:

Schonnel Essential Problem Arithmetic Test

Schonnel Essential Mechanical Arithmetic Test

Moray House English Test

Irish Test developed for the study and similar in form to the English Test.

48. Separate analyses were conducted using each achievement score as the dependent variable. Independent variables for each analysis were nonverbal reasoning, socioeconomic status, teaching skill, and extent of teaching through Irish. Two statistical procedures were used: multiple regression analysis and analysis of covariance.

49. Results were as follows:

- (1) On average, group 5, the group that had received most arithmetic instruction in Irish, received scores significantly below those of the other four groups in problem arithmetic. They were, in fact, 11 months below the mean of the other four groups.
- (2) There was no significant difference in the five groups in the scores on mechanical arithmetic.
- (3) There was no significant difference in the five groups on scores in English.
- (4) Scores on Irish increased with amount of time spent teaching in Irish; thus group 2 was better than group 1 and so on.

50. Part II of the study explored the second purpose--determining the effect of the entire program for reviving Irish on the English attainments of both English- and Irish-speaking children in Ireland. Macnamara compared the English scores of the Irish children with scores of British primary school children on the same test. He combined groups 1-5 as representative of the entire native English-speaking population in Irish schools, making a separate comparison for group 6 children.

51. The Moray House English Test is a test standardized on British children; therefore, it could be used to give information on the relative attainments of the Irish children. The edition used was standardized in 1941-45. Macnamara chose it because it represented an earlier era when the British children were presumably less test-sophisticated than they were in 1961, thus comparable to the Irish children at the time of this study.

52. Comparisons were made by placing the Irish scores on the conversion table for British scores, and then adjusting for differences in test sophistication, motivation, and greater numbers of rural children in the Irish population.

53. The results showed that the Irish children, from English-speaking homes, were 17 months behind their English-speaking peers in Britain, and that the Irish children from Irish-speaking homes were 30 months behind their English-speaking peers in Britain. Macnamara concluded that the reason for this difference in English attainment was the amount of time devoted to Irish in the schools.

54. Macnamara drew several conclusions from his research. Two important ones are:

- (1) Education through a second language can cause retardation in subject matter achievement, e.g., the lower scores of Irish children in problem arithmetic when these children had been taught largely through Irish.
- (2) Education through a second language can cause retardation in first language attainment, e.g., the lower scores of Irish children relative to their peers in England. He referred to this as a balance effect; that is, one pays for gains in a second language by losses in the first.

He concluded that these findings had serious implications for the future of Irish education.

55. Other researchers have interpreted Macnamara's data differently. Lambert and Tucker have observed that group 5 did as well in Irish as their peers in group 6, who were native speakers of Irish, and that they also did as

well in English as group 1, who had received all their instruction in English. Thus, there was no balance effect. They had gained in a second language with no losses in the first. (Lambert and Tucker, 1972).

56. Cummins has observed that the lower scores in problem arithmetic for group 5 may be due to the fact that they, and not groups 1-4, were tested in Irish. The lower scores then may not indicate retardation in subject matter as much as the effects of being tested in a weaker language (Cummins, 1978).

57. Cummins pointed out that the lower performance in English for the entire Irish sample may be due to a number of cultural and curricular factors--not only the increased amount of time devoted to Irish.

58. Cummins has also said that it is surprising that the Irish children did as well as they did, considering the unfavorable context, (the low prestige and low utility of the second language and the non-supportive parental attitudes at the time). He has reported that the latter-day Irish-medium schools, attendance at which is voluntary, are providing a favorable environment for academic and cognitive progress.

Canada: St. Lambert Immersion Program

59. Canada has two official languages--English and French. 60% of the population speak English as their mother tongue, 27% speak French, and 13% other languages. Formerly, use of English as the medium of instruction was compulsory in schools, but francophone parents often circumvented the laws and saw to it that instruction was provided through French (Swain and Barik, 1978).

60. In the mid-1960s tensions between the two major language groups had grown to the point where the unity of the nation was threatened. In an attempt to reduce the tensions, bilingual programs were begun. (Lambert, 1980).

61. The most famous of these programs is the St. Lambert Program in St. Lambert, a suburb of Montreal, Quebec. It was initiated by parents who were concerned about the ineffectiveness of current methods of teaching foreign languages, who wanted to provide their children with a thorough mastery of the minority group's language, and who believed that learning that group's language was an essential first step to developing mutual understanding and respect. The parents asked Lambert and Tucker of McGill University to help them establish a bilingual program. (Lambert and Tucker, 1972).

62. Thus, in 1965, 26 English-speaking children, with no French language experience, began Kindergarten exclusively in French. Only French would be used through grade 2. Thereafter, English would be gradually introduced, so that by grades 5 and 6, 60% of the instruction would be in English and 40% in French.

63. Lambert and Tucker carefully set up the program so that as the children progressed in their bilingual schooling, they could be evaluated. They were particularly interested in answers to these questions:

- (1) What effect does a bilingual education program, extended through the six years of primary school, have on children's progress in their first language skills?
- (2) How well do the children progress in developing second language skills?
- (3) What effect does the program have on nonlanguage subjects, such as mathematics?
- (4) What effect does the program have on the measured intelligence of the children?

64. Two control groups were established against which to compare the experimental children. They were two classes of English-speaking children from similar, middle-class neighborhoods (48 children in all), and a class of French-speaking children also from a similar, middle-class neighborhood (22 children). These two groups, the English and the French, would be receiving all their elementary schooling in their first language.

65. Before beginning instruction with the experimental and control children, information was collected on matters which might influence later achievement, other than the school program itself. This information included:

- (1) Socioeconomic status, assessed by interviews with parents
- (2) Parental attitudes toward schooling and toward the other language group, assessed by questionnaires
- (3) Nonverbal intelligence, assessed by children's performance on the Raven's Progressive Matrices Test

66. At the end of grade 1, the children in both the experimental and control classes were given a number of English and French tests, as well as a retest on the Raven's Progressive Matrices. (See Annex A for list of the tests.)

67. The mean scores on the tests were compared, taking into account differences in socioeconomic status and nonverbal intelligence. Statistical procedures included analysis of covariance, analysis of variance, and the Newman-Keuls technique.

68. Results at the end of grade 1 were as follows:

- (1) In tests of the first language, English, the experimental class was below the English controls, although they scored in the

50th percentile on American norms. (Tests included reading and indicated that the children had learned to read in English without specifically being taught.)

- (2) In most tests of the second language, French, the experimental class was much poorer than the French controls.
- (3) In arithmetic, the experimental class did just as well as both the English and French controls.
- (4) Measured intelligence did not seem to be affected by the program; neither enhancement nor retardation was in evidence.

69. In order to assess the reliability of these outcomes, Lambert and Tucker repeated the experiment with a new set of first-grade pupils. Thus, a new group of experimental children (called the follow-up group in contrast to the first year's pilot group) was established, with similar English and French controls. Again, about 100 children were involved.

70. At the end of grade 1, the testing was repeated. Results were similar so that the researchers proceeded, still with scholarly caution, but with increased confidence. (This use of the pilot and experimental follow-up groups continued through the primary school.)

71. At the end of each year, the pilot and the follow-up groups were tested on a wide range of language, achievement, and intelligence tests (see Annex A). At the end of grade 4, the results for the Pilot group were as follows:

- (1) In tests of the first language, English, the experimental group was doing as well as the English controls, on all tests.

- (2) In tests of the second language, French, the experimental group was roughly at the same level of the controls in receptive skills, but below them in productive skills. The differences here, however, were not as great as they had been in previous years.
- (3) In arithmetic, the experimental group performed as well as the English controls on a test with English instructions, and performed on an arithmetic test with French instructions as well as 50% of grade 4 French pupils in Greater Montreal.
- (4) In intelligence, there was no significant difference among the groups.

72. Through the elementary years, students in the experimental group, that is both the pilot group and the follow-up group, continued to perform well. At the end of grade 6, it was clear that

- (1) In their first language, they had developed as well as their peers in an all English program.
- (2) In the second language, they had learned to read and to understand orally as well as native speakers, but they had not learned to speak and to write quite as well as native speakers. However, they had learned to speak and to write far better than peers taking French in regular classrooms. 1/

1/ This apparent difference between productive and receptive skills may arise from a desire on the part of the anglophone children to remind interlocutors that, although proficient in French, they remain members of the anglophone ethnic group. In other words, the children could use native-like French pronunciation and grammatical forms, but they chose not to. A study probing this hypothesis was completed by Elizabeth Gatbonton Segalowitz in 1975. (Tucker, 1981).

- (3) In content subjects, i.e. arithmetic, they performed as well as the controls, giving no evidence of retardation caused by instruction through a second language.
- (4) In intelligence, they have shown no handicap. Indeed, evidence grew in the later primary years that the children's intelligence was enhanced, as measured by verbal and non-verbal intelligence tests. (Lambert, 1978 and Swain, 1979).

73. The St. Lambert Program has continued over the years. It has been copied, in the same or similar form, in many cities in Canada. Similar successful results have occurred.

74. This program has stimulated the development of many important concepts. One is the classification of bilingual situations as additive or subtractive. Another is the importance of supportive parental attitudes. A third is the influence of the linguistic development in the first language on the development of the second.

75. Lambert developed the concept of the additive vs. subtractive bilingual situation. (Lambert and Sidoti, 1980). An additive situation occurs when the second language is learned and added to the first. A subtractive situation occurs when the second language is learned, and pushes out the first. In the additive situation, both languages enjoy relatively high status and both groups relatively high prestige. In the subtractive situation the first language has lower status than the second, and its speakers, lower prestige. Learning the second language is influenced by the characteristics of the bilingual situation. If it is additive, children tend to learn the second language well. If it is subtractive, children often experience difficulties. (Lambert, 1980). The St. Lambert and other Canadian programs of this type

seem to be operating in an additive situation. (The Rizal program was as well. The Irish programs are not so easily classified. While the first language is of high status, and not in danger of giving way to the second, the second does not seem to have a great deal of chance for success in increasing its number of speakers.)

76. Tucker has referred to similar ideas. In several papers (1977, 1978, 1980) he has listed the characteristics of settings in which children can learn well in a second language. They include the placement of a high value by the wider community on the first language, the encouragement by parents and peers of literacy and first language maintenance, and the assumption on the part of parents and community of success in school.

77. Cummins has proposed another reason for the success of the children in the St. Lambert-type situation (1979). In addition to the sociolinguistic characteristics referred to by Lambert and Tucker, he has proposed that a key element is the cognitive and linguistic development of the child in his first language. He hypothesizes two kinds of language proficiency: basic interpersonal communication skills and cognitive academic language proficiency. It is the level of cognitive academic language proficiency in the first language which helps the child to do well in school in the second language. ^{1/}

78. In a recent paper (1980) Cummins has described the differences between these two types of proficiency: "With the exception of severely retarded and autistic children, everybody acquires basic interpersonal communicative skills in a first language, regardless of IQ or academic attitude. As Chomsky (1965) has pointed out, the phonological, syntactical

^{1/} Cummins has recently changed the terminology for these concepts. "Context-embedded language proficiency" replaces basic interpersonal communication skills and "context-reduced language proficiency" replaces cognitive academic language proficiency. (Cummins, 1981).

and lexical skills necessary to function in everyday interpersonal contexts are universal across native speakers. There are individual differences in the ways in which native speakers manifest these linguistic skills in interpersonal communicative contexts, e.g. oral fluency, but for the most part these differences are not strongly related to cognitive or academic performance. Thus, I prefer to use the term 'cognitive academic language proficiency' ...to refer to the dimension of language proficiency that is strongly related to literacy skills."

79. Thus, while children may develop basic interpersonal communication skills naturally, the development of cognitive academic linguistic proficiency requires active stimulation of the sort occurring in middle-class homes and in schools. Cummins has proposed that one of the key factors to success in the second language is "the linguistic input" from the child, and that if the cognitive academic linguistic proficiency has been already developed in the first language, then it can be easily transferred to the second, given adequate desire and exposure. (Cummins, 1979). This is the interdependence hypothesis--the interdependence of cognitive academic linguistic proficiency across the languages. It means that the manifestation of the proficiency in two languages may be a manifestation of the same underlying proficiency. This hypothesis will be referred to several times in this paper--in connection with the Mexican study, the Swedish study, and in the conclusions.

80. Thus, to return to the St. Lambert study, it is Cummins' belief that the English-speaking children of St. Lambert, coming as they did from the majority and high-prestige language group, had developed by the time they entered school the cognitive and linguistic characteristics which would enable them to benefit from schooling. Their first language was "set" as it were and would not be shaken by intensive exposure from the second language.

III. Case Studies in Which Children Learned First Through Their First Language as the Medium of Instruction

Mexico: Modiano's Chiapas Highlands Study

81. Spanish is the national language of Mexico, but there are many other languages. Over 10% of the population are Indians, speaking over 50 languages. (Modiano, 1973).

82. The state of Chiapas lies in the highlands at the southern end of Mexico, bordering Guatemala and the Pacific Ocean. It has the oldest public bilingual school system in the Americas south of Canada, the bilingual schools of the "Instituto Nacional Indigenista", begun in the 1950s.

83. In 1964-1965 Modiano studied 1,600 Mayan children in the Chiapas area. These children attended two kinds of schools. The first was the bilingual schools of the "Instituto Nacional Indigenista" and the second was the monolingual schools of the state and federal school systems. In the bilingual schools, in the first year, the children began to read in their mother tongue, and in the second year (after oral drills in Spanish), they began to study reading in Spanish. In the bilingual schools, many of the teachers were Indians, without much formal education, whereas in the monolingual schools most of the teachers were "mestizos" with the formal education required for public school teachers. (Engle, 1975).

84. Modiano's study had two foci: (a) The teaching of reading, and (b) the effect of the ethnicity of the teacher on learning. She hypothesized that reading in Spanish would be better if children were introduced first to reading through Spanish than if they were taught first through their mother tongue. She hypothesized that there would be no difference in achievement

between the children taught by native Spanish-speaking teachers and by the ethnic Indian teachers.

85. She carefully matched children in 26 schools within three tribal areas, taking into consideration such factors as:

- Acceptance or resistance to schooling on the part of the community
- Size of population
- Climate
- Diet
- Health
- Outside contacts
- Principal sources of income
- Proportion of Catholics

No attempt was made to gather background data on intelligence, aptitude, or chronological age, because she felt it to be almost impossible. (For instance, the children had little notion of their chronological age.) Instead, whole communities were matched on the characteristics listed above.

86. She developed a special 88-item reading test in Spanish which she pilot-tested and validated with year-end promotion examinations and an individualized test of Spanish reading comprehension. She administered this test to 1,600 children at the end of grade 3. In addition, she asked classroom teachers to name the proportion of children in their classes who were able to understand what they read in Spanish.

87. She compared the results between the bilingual and the monolingual schools. Statistic procedures were the t test and chi-square analysis.

88. At the end of grade 3, after three years of instruction, a significant difference in skill in reading Spanish was found in favor of the children taught in their mother tongue. Thus, the original hypothesis was not supported. Also, the children, including those taught in Spanish by ethnic Indian teachers, seemed to prefer the Indian teachers, and to have learned better from them.

89. Modiano's conclusions from the study, and those of many who have reported it, is that most of the success of the children who learned to read first in their vernacular was due to the separation of the two tasks: learning to read and learning to use a second language. The bilingually taught children learned to read in their first language and, separately, learned to understand and speak in their second. Later they transferred their reading skill to the second language. The monolingually-taught children learned to read in their second language as they were learning to use their second language. This double burden accounts for their poorer showing in the tests. (Rosier and Holm, 1980).

90. Cummins believes that the same factors are at work in the success of the English-speaking children in Canada learning to read first through their second language, and the success of these vernacular-speaking children in Mexico learning to read first in their first language, and later in the second. He says that the "relatively greater success of vernacular education in minority language situations is due, partly at least, to the fact that certain aspects of the minority child's linguistic knowledge may not be fully developed on entry to school. Thus, some children may have only limited access to the cognitive-linguistic operations necessary to assimilate a second language and develop literacy skills in that language." (Cummins, 1979). This is another statement of the interdependence hypothesis referred to in connection with the Canadian study.

Nigeria: The Six-Year Primary Project in Ile-Ife

91. English is the national language of Nigeria. There are other languages in the country--estimated at between 400 and 600 in number. Three are used widely: Yoruba, Hausa, and Igbo. In addition, Arabic is also spoken.

92. In 1977, the government, as part of its program for universal primary education, began to encourage the use of one of the three major indigenous languages in the first years of primary school. The indigenous language was to be followed, from grade 4 onwards, with English as the sole medium of instruction.

93. The Six-Year Primary Project began in 1970 as an effort to demonstrate the effectiveness of Yoruba as the medium of instruction for the full six years of primary school. At first, one school was involved; in 1973 the number was expanded to ten additional schools, called proliferation schools.

94. The experimental classes use Yoruba as the sole medium of instruction throughout primary school. One experimental group has English-as-a second-language instruction given by a specialist; the others do not. The control classes have three years of instruction in Yoruba, and three in English.

95. Evaluation was begun in 1976, and continued in 1977, to answer the following four questions:

- (1) What effect does the use of Yoruba as the sole medium of instruction throughout primary school have on academic achievement of primary school pupils?
- (2) How effective is the new curriculum for teaching Yoruba, Mathematics, Social and Cultural Studies, and Science?
- (3) What effect does the use of a specialist English teacher have on the development of the English language skills of primary school pupils?

- (4) How effective are the new English materials for the teaching of English? (Cziko and Ojerinde, 1976 and Ojerinde and Cziko, 1978).

96. Five groups were evaluated. They were

<u>Group</u>	<u>Medium of Instruction</u>	<u>Curriculum</u>	<u>English Materials</u>	<u>English Teacher</u>
St. Stephen's Experimental	Yoruba	New	New	Specialist
St. Stephen's Control	Yoruba and English	New	New	Non-Specialist
Proliferation Experimental	Yoruba	New	New	Non-Specialist
Traditional Schools	Yoruba and English	Traditional	Traditional	Non-Specialist

97. Data were collected on the 439 subjects of the evaluation.

Topics covered were

Age when entered grade 1
Sex
Religion
Mother tongue
Father's education
Mother's education
Father's occupation
Mother's occupation
Number of father's wives
Total number of siblings

It was assumed that age and socioeconomic status would have an effect on school performance.

98. At the end of grade 3, the pupils were given a number of English and Yoruba tests, tests of academic achievement, and a nonverbal intelligence test. (See Annex A).

99. Statistical procedures included factor analysis, one-way analysis of variance, and two-way analysis of variance.

100. Overall, the results were inconclusive. (It is only fair to say that they were not meant to be conclusive. The purpose of this evaluation was to form a data base for future evaluations.) None of the comparisons showed statistically significant differences.

101. At the end of grade 4, the pupils took another series of language, achievement, and intelligence tests. (See Annex A). Because the control groups had switched to English as the medium of instruction, Yoruba and English versions of the achievement tests were administered to appropriate groups. This time, 416 subjects were involved.

102. The pupils in all five groups were compared on all tests. Analysis of covariance, controlling for socio-economic status, was used as the principle statistical procedure. (It was not possible to control in a similar fashion for IQ because tests had not been administered before the project began. Thus, while the school's program would definitely not influence the family's socioeconomic status, it might have influenced the child's IQ.)

103. Some answers, at this point, could be tentatively advanced for the four questions posed in the study.

- (1) The use of Yoruba as medium of instruction at grade 4 does not appear superior to the use of English in all academic subjects, but neither does the use of English appear superior.
- (2) The new curriculum has not shown itself to be superior for the teaching of Yoruba and academic subjects.

(3) The use of the specialist English teacher has been effective in fostering English language skills.

(4) The new English materials are more effective than the old.

104. Unfortunately, the formal evaluations have not continued, so it is difficult to say whether or not the project has been successful. However, on pragmatic grounds it appears to have been successful. From the beginning, the investigators had to face the parental and school fears that additional time in Yoruba would serve as a detriment to the learning of English and hence eligibility for secondary school. These fears have been quieted because the same proportion of children in the experimental groups as in the control group have gone on to secondary school. In spite of less time spent learning English, English achievement, apparently, did not suffer (Macmillan, 1980).

Sweden: Skutnabb-Kangas and Toukomaa's Study for UNESCO and the Sodertalje Language Shelter Program

105. Swedish is the national language of Sweden. One eighth of the population are migrants, and half of these are from Finland. (Skutnabb-Kangas & Toukomaa, 1979a).

106. The government now provides mother tongue instruction for all children whose parents want it. This policy has resulted in 300 language shelter programs offering instruction in the mother tongue; 200 of these are in Finnish.

107. In 1971-1973 Skutnabb-Kangas and Toukomaa examined Finnish migrant children in Olofstrom and in Gothenburg. Their aims were

- (1) To determine the linguistic level and development in both mother tongue and Swedish of Finnish children attending Swedish comprehensive school.

- (2) To ascertain the achievement of Finnish children in Swedish schools.

They were especially looking for answers to these questions:

- (1) What is the relationship between skills in the mother tongue and in Swedish? Do those children who have the best Finnish also have the best Swedish? What is the significance of the age at which the child moved to Sweden? Do those who received a firm grounding in their mother tongue by attending school in Finland have a better chance of learning Swedish than those who moved to Sweden as preschoolers?
- (2) Do one's skills in the mother tongue have any effect on the grade given in Swedish-language school? (Skutnabb-Kangas and Toukomaa, 1976).

108. The investigators tested children in grades 1 through 6 (and some in grades 7-9), in three kinds of school programs: (a) A program which offered instruction only in Swedish, with no instruction at all in Finnish even as a subject; (b) A program which offered instruction in Swedish as the medium of instruction, but with Finnish as a subject; and (c) A program which offered instruction in Finnish as the medium of instruction and with Swedish as a subject. These three programs were as follows:

<u>Place</u>	<u>Program</u>	<u>Grades</u>
Olofstrom (1)	All instruction in Swedish	1-9
Gothenburg (2)	Instruction in Swedish; Finnish as a subject 2 hours a week	1-6
Gothenburg (3)	Instruction in Finnish; Swedish as a subject	1-3

109. Background data was collected on length of residence and age of arrival.

110. The children were tested on tests standardized either in Finland or in Sweden. (See Annex A).

111. Two types of analyses were made: comparisons and correlations. Mean scores were compared among the three groups in Sweden. They were also compared to the national norms for the respective tests. Correlations were performed with the following variables: length of residence, first language and second language skills, age of arrival, and grades in Swedish schools.

112. Results showed that linguistic development in Finnish was poor. The third grade groups which had been instructed in Swedish, in Olofstrom and Gothenburg, performed at a level lower than 90% of Finnish children in Finland. The third grade group in Gothenburg that had received instruction in Finnish performed at a higher level, but they too did not approach the average score of Finnish children.

113. Linguistic development in Swedish was poor as well. In fact, it was poorer than in Finnish. Only 10% of the Swedish children scored as low as the average Finnish children educated only through Swedish.

114. Language skills are clearly related to the length of time spent in Sweden: skills in Finnish decrease and skills in Swedish increase with time. However, the effect of time on learning Swedish is less than on the regression of Finnish. In other words, the children appear to be forgetting Finnish faster than they are learning Swedish.

115. When the effect of length of residence is held constant in the analysis, skills in Finnish and Swedish were shown to be closely linked,

especially for children who had moved to Sweden before school age or who had moved at 9-11 years. The interdependence between language skills for children who moved at 6-8 years is not as strong.

116. The correlations between age of arrival and skill in Swedish reveal that skill in Swedish was best for those children who moved at 9-11 years. Next best were those who were either born in Sweden or who had moved before school. Much the worst were children who had moved at 6-8 years, at the time when they would have been beginning school in Finland. (This 6-8 year age seems to be the age of greatest risk. The researchers claim that children ages 6-8 whose mother tongue development is destabilized by a move to another country and immediate immersion in a second language, as would have happened when the child started school, have the poorest chance of catching up to their peers either in the first or the second language.)

117. In terms of achievement in Swedish schools, the Finnish pupils appeared to be below their Swedish classmates in all but the non-academic subjects. They did relatively well in mathematics, however.

118. Finnish language skill correlated with grades in mathematics, as well as in biology, chemistry, and physics. At the upper grades, it also correlated well with grades in the third language, English.

119. Skubnabb-Kangas and Toukomaa concluded that the longer the children are educated in their home language, the better will be their achievement in the school language. Moreover, if they don't receive instruction in the home language, they may gradually lose competence in that language without compensatory gains in competence in the school language. This may result in semilingualism, a condition which occurs under special social and economic

conditions, and results in a child's failing to acquire in any language the linguistic skill appropriate to her/his original linguistic capacity.

120. Skutnabb-Kangas (1979a) has compared the Canadian studies to the Swedish ones, noting these important differences between the Canadian bilingual children and the Finnish semilingual ones:

- (1) The Canadian bilingual children belonged to a linguistic majority in their country; the semilingual Finnish children belonged to a minority.
- (2) The mother tongue (English) of the Canadian bilingual children had either higher prestige than the language they learned as a second language (French), or the same prestige; the mother tongue (Finnish) of the Finnish children had lower prestige than the language learned as a second language (Swedish).
- (3) The parents of the Canadian bilingual children were free to choose between instruction in the first language (English) or the second (French). The Finnish parents presumably had no choice. Like most minorities, they had to accept the language chosen by the majority.

121. Cummins has concluded that the Swedish study offers evidence for two important hypotheses: the interdependence hypothesis referred to earlier in connection with the Canada and Mexico studies and the threshold hypothesis. As mentioned before, the interdependence hypothesis refers to a kind of language proficiency, called cognitive academic language proficiency, which underlies development of thinking ability and reading skills. Cummins argues

that if it is developed for the first language, it will more easily manifest itself in the second language, given appropriate exposure to the second language. (Cummins, 1979).

122. The threshold hypothesis refers to levels of competence in both languages which children must reach in order for no disadvantages to accrue to bilingual exposure. In fact, there may be two thresholds--one which the child must reach in the two languages to prevent negative outcomes, and another, a higher one, which the child must reach in both languages to foster positive outcomes--the cognitive enrichments that Lambert and others have written about. (Lambert, 1978; Kessler and Quinn, 1980.)

123. Skutnabb-Kangas and Toukomaa reported on a large-scale, longitudinal study, led by Swedish psychologist, Gote Hanson. This study was at the language shelter program in Sodertalje. (Skutnabb-Kangas and Toukomaa, 1979b).

124. The program offered Finnish as medium of instruction to Finnish migrant children in grades 1 and 2, and also in grade 3, but with some use of Swedish in grade 3. In grades 4-6 Swedish became the main medium of instruction, but the use of Finnish continued as well. At the end of grade 6, the Finnish children at the school did as well as the Finnish children in Finland on all language tests. They did as well as the Swedish children in Sweden on listening and reading comprehension and on oral production tests in Swedish and could write in Swedish almost at grade level. Thus, the education in the mother tongue seems to result in much better achievement than in the Swedish-only programs, and offers empirical evidence for good results in curing semilingualism.

United States: The Rock Point Indian School

125. In the United States English is the official language, but 13% of the population live in homes where English is not spoken. In the majority of these homes, Spanish is the language used.

126. At present there are about 400 recognized Indian tribes in the United States with over 200 languages. The largest Indian group is the Navajo, which numbers 160,000 persons, living on the Navajo reservation in New Mexico, Arizona, and Utah.

127. Language practice in the United States has changed greatly over the last 100 years. In the nineteenth century multilingualism was considered a national resource, and there were many schools and other institutions, public and private, which supported maintenance of various languages. In the 1920s the focus shifted from this acceptance of diversity to an emphasis on national unity. The ideal became a totally English-speaking society and only English was permitted in the public schools. In the 1960s minority groups began to stress the importance of ethnic identity and ethnic rights, including the language rights of non-English speaking children. In 1968 the Bilingual Education Act was passed which provided for instruction in the mother tongue for pupils who, because they spoke little or no English, were not able to learn well through English.

128. The official attitude toward the Indians of the United States and their languages has changed as well. It has fluctuated from "virtual genocide to moderate acceptance, from encouragement of assimilation to some degree of support for ethnicity, from the emphasis on learning English to the principle of rights to their own language." (Spolsky, 1978).

129. On the Navajo Reservation, in the northeastern part of Arizona, is the Rock Point Community School. It was begun in the 1930s as a small day-school, and expanded in the 1950s and 1960s. It became a community-controlled contract school in 1972, managed by its own school board. Comprehensive bilingual instruction was begun in 1971. (Rosier and Holm, 1980).

130. The Rock Point study concerns evaluation of the on-going bilingual program of the school. Most of the research was conducted in 1975-1977 by the personnel of the school, in cooperation with the Navajo Area Education Office.

131. Rock Point School is a "coordinate bilingual" school. This means that the instruction given in the two languages is separated by teachers, one teacher for each language in each of the grades. It is a maintenance program, in which the mother tongue is maintained and developed, with a gradual shift toward English. (This term "maintenance" is in contrast to "transitional", the type of program which aims to move children as rapidly as possible to another language.)

132. The school curriculum involves 70% instruction in Navajo in kindergarten, 50% instruction in Navajo in grades 1 and 2, and 20% in Navajo in grades 3 through 6. Thus, in kindergarten, reading readiness, arithmetic, and social studies are in Navajo, and English language and art are in English. In grade 1, reading is introduced in Navajo. In grade 2, reading is introduced in English. In grades 2 through 6, reading and arithmetic are in English, and reading and science or social studies are in Navajo.

133. The investigators have asked the question: What is the effect, over time, of two kinds of programs--bilingual and monolingual--on three areas of

achievement: reading in the second language, arithmetic, and language proficiency in the second language. The experimental bilingual group was the Rock Point School and the control monolingual group consisted of seven other schools in the Chinle Agency ^{1/} where English is taught first as a second language and then used for all instruction in all subjects. Additional comparisons were made with schools from the Navajo Reservation, and with the national U.S. norms.

134. There were approximately 1,000 children involved in the study-- 220 children at Rock Point and 780 at the seven control schools. The seven schools were chosen as controls because the children there had a similar linguistic background to those at Rock Point; the schools had established English-as-a-foreign language programs; they had two instructors in the Kindergarten through grade 2; they had one instructor per class with native competence in Navajo; and above all because they were considered the best schools in the Chinle Agency.

135. The Rock Point children in grades 2 through 6, in 1975, 1976, and 1977 were compared with children in the same grades in the control schools. For each of the three years, the scores of control schools for 1975 were used. The assumption was made that because most pupils remain in the same school from kindergarten through grade 6, the mean scores at each grade tend to be constant; therefore, one-time data can be treated as multi-year data.

136. Tests were given in reading in English, achievement in arithmetic, and in English proficiency. (See Annex A).

^{1/} Chinle Agency is one of the agencies on the Navajo Reservation. Five of the schools in the agency were used as controls in this study.

137. The mean scores of the groups were compared, using the T-test to compare the means for the experimental and the control groups. No other statistical analysis was performed.

138. In addition to comparisons between the experimental and control groups, the Rock Point means were compared with the Chinle Agency means, the Navajo area means, and the national norms.

139. The results were positive. Despite the late start in English reading, the bilingual group had high mean scores on the reading tests at all grades above grade 3. With each successive year, they made more gains, until at grade 6, they were two years ahead of the control schools in the Chinle agency, and just three months under national norms. In arithmetic, the bilingual group was also higher than the control group--at grade 4 by a half year, and at grade 6 by a year. In English language, the fourth graders at Rock Point also scored better than the controls, and by grade 6 they scored only 10% below native English speakers in both grammar and listening comprehension.

140. There are three major conclusions from this study:

- (1) The kind of education offered at the Rock Point School appears to be more effective for the Navajo children than that of other kinds of schools. Besides the choice of language of instruction, there are many other factors which may account for the success: teachers (most of the teachers are Navajo), materials, methods, and the kind of school organization with much parental involvement, insistence on high standards of attentiveness and achievement, and continuity of leadership.

- (2) The ability to use a second language is not a simple function of length or amount of in-school exposure to the second language, for the children at Rock Point had far less time in English, than the control children in the other agency schools.
- (3) The results of initial instruction, and continued instruction, in the first language are cumulative on performance in the second language. The Rock Point children did not surpass the controls until grades 3 and 4, but then with each year their gains accelerated. This implies that the format of transitional bilingual education may be less effective than a maintenance program for the first language.

IV. Conclusions

141. After this brief summary of the research, let us return to the questions posed at the beginning of this paper: In a multilingual society, what is the best choice as the initial language of instruction for the child in primary school? Is it a second language, or is it the first language? Which will result in greater achievement in primary school? Which will result in greater access to secondary school?

142. Of the eight studies reviewed, two made a strong case for the second language (Philippines Rizal Study and the St. Lambert Study), and one a weaker case for the second language (the Irish medium school study in Ireland). Four made a strong case for the first language (the Mexican Chiapas Highlands Study, the two Swedish studies, and the Rock Point School study), and one a weaker case (the Nigerian Six-Year Primary Project).

143. Are there any conclusions we can draw from what appear to be conflicting results? Are there any universals which would explain the differences? Are there situations where initial primary instruction in the second language is appropriate and effective, and others where initial primary instruction in the first language is more appropriate, and will be more effective?

144. Several of the scholars think so. Cummins (1979), Lambert (1980a and 1980b), Skutnabb-Kangas (1978), and Tucker (1977 and 1980) are among those who claim that there is not one answer to the question of what language to use for primary school, but several answers, depending on the characteristics of the child, of the parents and the local community, and of the wider community. These characteristics are interdependent. For the purposes of discussion, they will be considered separately, but should otherwise be considered as variables interacting with one another.

Situations Where Initial Primary Education in the Second Language May Be Appropriate

145. If the child's first language has developed to the level where he has the conceptual and linguistic prerequisites for the acquisition of literacy skills, initial primary education in a second language may be appropriate. (Cummins, 1979 and Tucker, 1977).

146. If the parents freely choose instruction in the second language, if they expect the child to use and to read the first language, and if the parents expect the child to succeed, initial primary education in a second language may be appropriate. (Cummins, 1979, Skutnabb-Kangas, 1979, and Tucker, 1980).

147. If the wider community views the first language of the child as having a social and economic status that is as high or higher than the second language, if, in other words, the child is a member of the linguistic majority of the country and the bilingual situation is an additive one, initial primary education in a second language may be appropriate. (Skutnabb-Kangas, 1979.)

148. Most of these conditions obtained for the English-speaking children learning through French in Canada; many of them for the Pilipino-speaking children learning through English in the Philippines; and some of them obtained for the English-speaking children learning through Irish in Ireland, at least in the present-day schools.

Situations Where Initial Primary Education in the First Language May Be Appropriate

149. If the child's first language has not developed to the level where he has the conceptual and linguistic prerequisites for the acquisition of

literacy skills, initial primary instruction in the first language may be appropriate. This refers to the hypothesis that the cognitive academic linguistic proficiencies of each language, the first and the second, are interdependent and that for this proficiency to develop in the second language, a certain level of cognitive and linguistic development must have already taken place in the first language.

150. If the parents want instruction in the first language, and/or there is little pressure in the home or the local community for literacy or language maintenance in the first language, then initial primary instruction in the first language may be appropriate.

151. If the wider community views the first language of the child as having a lower social and economic status than that of the second language, if, in other words, the child is a member of the linguistic minority of the country and the bilingual situation is a subtractive one, then initial primary education in a first language may be appropriate. (This generalization applies equally well to a situation like that of the Andean countries of Bolivia, Peru, and Ecuador where the Indian child is not necessarily a member of the linguistic minority but is a member of a low status socioeconomic group. (Briggs, 1981.)

152. The causal links are not easy to trace, but the following plausible hypothesis is not inconsistent with the data: a child in a subordinate group has low feelings of self-worth. These feelings influence his achievement, or lack of achievement, in a school whose classes are conducted in a language other than his mother tongue. When the initial schooling is conducted in his mother tongue, through teachers with whom he can identify, then his feelings of self-worth are enhanced, and his achievement in the mother tongue and in the second language are improved.

153. Most of these conditions seem to have obtained in the Chiapas Highlands bilingual schools; some of them may be present in the Six-Year Primary Project in Nigeria; and most of them are present in the Sodertalje Language Shelter Program, and in the Rock Point Navajo School.

V. Education Sector Policy Paper

154. This section discusses some of the areas of concern mentioned in the Education Sector Policy Paper (p. 20) and referred to in the first paragraph of this paper.

Emphasis on Local Languages

"The emphasis on local languages can, however, diminish an individual's chances for further education and limit the access of specific groups or countries to the international body of knowledge."

155. Most of the developing countries rely on a language of wider communication as the medium of instruction at the university level, and many at the secondary level as well. I found only one country, Indonesia, that uses a local language, in this case the national language, for the university. Others use a language of wider communication, English and French in Africa and much of Asia, and Spanish in Latin America.

156. The area of concern can be restated as a cluster of questions around the need to learn a second language: Will early education in the local language prevent the child from learning the second language necessary for further education? Wouldn't it be better to educate children in that second language from the beginning? Shouldn't we give the child right away the tools he'll need for twentieth--and twenty-first--century knowledge and skills, so that through this knowledge and these skills he can contribute to the further development of his country? Should we waste scarce resources educating children in languages spoken by relatively few of the world's people?

157. In countries with very limited resources, the questions emerge as conflict between the learning in a first language necessary for the child

to understand what he is being taught and the learning of a second language necessary for further education. In Bank discussions, the conflict often emerges as conflict between "cultural identity" and "economic identity"-- between an opportunity to identify with one's own group by learning in a first language and the opportunity to better oneself financially by being able to use a second language.

158. At the heart of these questions and conflicts is the matter of costs. If Uganda cannot afford textbooks in English, how can it afford textbooks in all the local languages? If Peru does not have enough trained teachers in Spanish, how can it afford to train teachers in Quechua and Aymara as well?

159. At this point, we do not know the cost of the alternatives. There is very little research on the cost of bilingual or multilingual alternatives. But we do know something about the effectiveness of the alternatives. As this paper has mentioned repeatedly, the evidence is slowly building that it is effective to begin a child--in certain situations--in his first language and later start him on the necessary second language, continuing if possible some study in the first. In other words, in terms of effectiveness there may be no choice: if you do not have the first language set, you will not get the second. The elite in the country may become fluent in the second language, but the population as a whole will not be literate in either the first or the second language. (See the Mexico, Sweden, and U.S. studies mentioned in this paper.)

160. Cummins and Swain are conducting a new study for the U.S. National Institute of Education which will shed further light on the relationship between the first language and the second. They are studying two kinds of

students of English in Canada: Japanese immigrants and Cantonese-speaking Vietnamese refugees. They are examining two hypotheses:

- (1) There are two kinds of language proficiency: basic interpersonal communicative skills and cognitive academic language proficiency. These two can be empirically distinguished from each other.
- (2) Cognitive academic linguistic proficiency in both the first language and the second language are interdependent; the higher the level of this proficiency in the first language, the more rapidly this proficiency will be manifested in the second.

For both the Japanese and the Vietnamese groups, the research design involves testing to determine if the basic interpersonal communication skills and the cognitive academic language proficiency in the first language and in English can be empirically distinguished, and testing to determine the degree of interdependence between the cognitive academic linguistic proficiency in the first language and in English.

161. Results of the research will be published soon. They will offer further insights into the relationship between acquisition of the two languages and may offer further evidence of their complementary nature. (Rivera, 1980).

Situations Where Literacy Most Readily Acquired

"Many developing countries are moving toward the use of local languages in the early years of formal schooling because literacy is most readily acquired in the language the learner already speaks."

162. I assume that literacy here means initial literacy—learning how to read and write for the first time. It is a fact that it is an easier task in the language the learner speaks. Evidence for this abounds, not only in everyday experience, but in the studies presented here.

163. Many of the scholars state that the child learns to read only once. (Rosier and Farrella, 1976). Then he transfers that skill to the second language that he has learned. It is automatic, needing only a few adjustments for spelling, pronunciation, or different scripts. The experience of World Bank staff children offers evidence of this, as well as some of the case studies presented here.

Relationship between Literacy in Native Language and Competence in a Second Language

"There is no conclusive evidence, however, that competence in a second language is more easily acquired if the student is already literate in his native language."

164. Using the Cummins terminology, there may be two kinds of competence: basic interpersonal communication skills and cognitive academic language proficiency. There may be no relationship between the basic interpersonal communication skills of one language and those of the second, except as they are determined by the personality of the learner. For example, children with an outgoing personality will interact easily with other children, and thus acquire basic interpersonal communication skills in the second language easily. What seems to affect that acquisition is the sociability on the part of the child, his lack of fear of rejection or of appearing foolish etc., rather than the degree of basic interpersonal communication skills development in his first language.

165. However, there seems to be an important relationship between the cognitive academic linguistic proficiency of each language; indeed in Cummins' thinking they are both manifestations of the same dimension. Therefore, if the student is already literate in his native language, he will more easily become literate in the second language. This hypothesis underlies the current Cummins and Swain study, mentioned in the previous section. Similarly, the

Skutnabb-Kangas and Toukomaa study concluded that Finnish children who came to Sweden at 10-12 years of age, after they had developed literacy in their own language, did better in Swedish than the younger children. (Troike, 1978).

166. A recent study provides evidence of the advantages which may accrue to second language development by providing students with literacy training first in their mother tongue. The study was done by Barbara Robson under the auspices of The Asia Foundation in a refugee camp called Ban Virai in Thailand. The subjects were 44 Hmong refugees from Laos, ages 16 and above. After three and a half months of instruction in English as a second language (ESL), the subjects who were literate prior to the program did much better on English language tests, both oral and written, than those who were illiterate prior to the program. This was true for those who had learned to read out of school as well as for those who had learned in school.

167. Robson has concluded, "While this study strongly supports a programmatic approach in which Hmong students are taught literacy in Hmong as a preliminary to ESL, it provides no information per se as to whether non-literate Hmongs will learn more English in a short-term program, a portion of which is devoted to Hmong literacy, as opposed to a program of the same duration which teaches only ESL. However, if the fact that the non-literate subjects in the study learned little or nothing in the program is taken into account, the study suggests that any alternative program design can produce at least equal or better results with non-literate students; it then supports a program in which Hmong literacy training substitutes for some of the ESL."

(Robson, 1981).

Relationship between Oral Training in Second Language and Teaching for Literacy in a Second Language

"Studies seem to indicate that teaching for literacy in a second language is unlikely to succeed without prior oral training in the new language."

168. True. This is what occurred in the Mexican study. This training can be a matter of formal oral drills in the new language, or simply experiences in the new language without formal instruction. (Cummins, 1981).

Effect of Bilingual Programs on Development of Children in the First Language

"Bilingual programs do not, apparently, retard the development of children in their native language."

169. It is true that certain bilingual programs do not retard children in their own language. Lambert cites evidence that good bilingual programs enhance the development of children in their first language, giving them "definite advantages on measures of 'cognitive flexibility', 'creativity', or 'divergent thought.'" (Lambert 1978). Kessler and Quinn write about the "positive effects of bilingualism on science problem-solving abilities." (Kessler and Quinn, 1980). These studies involve children whose two languages have been developed to a fairly high level--evidence for the Cummins threshold hypothesis mentioned in connection with the Swedish studies.

170. Other bilingual programs do retard the development of children in their native language. These are programs which are only minimally "bilingual" and which move the children too fast in the direction of monolingual programs. Apparently this was the case in some of the schools of Sweden that Skutnabb-Kangas and Toukomaa studied, as well as in other situations cited where adequate exposure had not been provided to the first language.

171. The key here is to "sustain and to nurture youngsters' linguistic and cognitive development while teaching the second language and gradually introducing content materials in the second language, without abandoning the language arts or the content material taught in the mother tongue." (Tucker, 1980).

VI. Recommendations for Bank Staff

172. This paper has attempted to shed light on some areas of concern regarding the appropriate language for initial primary education in multilingual societies. It reviewed eight case studies which contrasted initial primary education in the second language and in the first language. The purpose was to familiarize Bank staff with the research of the past years so that they would be able to improve the design and implementation of Bank projects.

173. Based on these studies, and on conversations with linguists, I would now like to make some recommendations to Bank staff about appropriate actions in dealing with borrowers. My recommendations are given as imperatives to make them easy to understand. I assume that the reader will supply the necessary diplomatic qualifications as he goes through the list.

174. Recommendation 1: Realize, and encourage borrowers to realize, that there is no one universal best answer to the questions of language choice. Appropriate answers must depend on the particular characteristics of each situation. With careful study and much discussion within the country, there can emerge, if not the best answer, a good answer. That answer, or answers, should permit flexible solutions with provisions for revision as the situation and needs change.

175. Recommendation 2: Early on in the project cycle, find out about the languages. Find out what they are, where they are, how close structurally they are to one another, who uses the languages, and what people think about them and the people who use them. Find out, too, the degree of development

of the languages in terms of written forms, spelling systems, vocabulary, and syntax.

176. Recommendation 3: Encourage education officials to think positively about use of the first language if the children have not had the opportunity to develop their first language well. There is a growing body of research which indicates that children who have not learned their first language well will not learn well in their second, that is, they will learn neither to read the second language well nor to acquire subject matter through the second language. Encourage officials to believe that more instruction in the first language will promote better learning of and through the second, a counter-intuitive argument discussed throughout this paper.

177. Recommendation 4: Encourage education officials to think positively about use of the first language. If the parents are favorably disposed toward this choice, capitalize on their support. If the parents are not, for instance if they are fearful that their children will lose out on learning the second language, help officials develop an outreach program to educate the parents. (New Zealand has such a program in which they help teachers of Maori children deal with parental fears. Benton, 1979.)

178. Recommendation 5: Encourage education officials to think positively about use of the first language if the wider community does not ascribe high status to the speakers of that language. Subordinate groups in a society appear to develop poor concepts of self and hence do not achieve well in school. The use of the first language in school, by speakers of that first language, encourages the development of an improved sense of self and hence greater achievement. Although it may be difficult to find native speakers

fully qualified as teachers, the native speakers can still be used in the classroom as teachers-in-training or as paraprofessionals, thus helping to reinforce the child's positive self image.

179. Recommendation 6: Early on, help the borrowers build in an evaluation component for the language aspects of a project. Encourage them to establish control groups with which to compare progress of the experimental groups. Encourage them to collect data similar to those referred to in this paper: scores on reading tests in the second language and in the first language, and tests in problem arithmetic or other subjects in either language, as well as statistics on admission to secondary school. Because of the many variables involved, these evaluations will not give conclusive proof of the rightness or wrongness of the language decision, but they will add to the evidence and to the body of research literature. What is most important, they will provide information on developing countries. Until we begin to accumulate more information from developing countries, research from the developed countries will be susceptible to the charge that it is not appropriate for developing countries. It may not be, but we need to find that out.

180. Recommendation 7: Study the cost alternatives. The literature reviewed in this paper does not mention cost. Achievement is the only consideration. Bank staff are in a key position to analyze costs of implementing different language policies in education. Above all, consider the issue of cost effectiveness. While it might be cheaper to use only French in an African country, if the children learn a fraction of what they would have learned had part of the education been in their own language, or if the entire years of primary school are used just to teach them the French language, one

has to question the effectiveness of the education--if that country has as a pronounced objective that of literacy for all of its citizens.

181. Bank staff members will recognize that this list is far from exhaustive. They will have their own recommendations based on their own experience and on matters not covered by the research reviewed in this paper. Such recommendations will deal with socio-political considerations, such as political and cultural identity and rejection of the colonial languages, as well as economic considerations, such as the probable future occupation of the children.

182. The issues are sensitive and complex. This review of the research has offered empirical evidence on which to base educational decisions about the appropriate language for use in primary education in multilingual societies.

Annex A: Tests Used to Measure Outcomes of Study or Program

Canada

Grade 1

Metropolitan Achievement Test (subtests in English Language and arithmetic)

English: Peabody Picture Vocabulary
Word associations
Oral Speaking Skill

French: Oral speaking skill
Phonemes
Mathematics
Reading
Word Discrimination

Intelligence: Raven's Progressive Matrices

Grade 4

Metropolitan Achievement Test (subtests on English language and arithmetic)

English: Listening comprehension
Peabody Picture Vocabulary
Story invention
Decoding Skills

French: Listening comprehension
Peabody Picture Vocabulary
Story Invention
Decoding Skills

Arithmetic: Computation
Problem Solving

Intelligence and Creativity:

Raven's Progressive Matrices
Lorge-Thorndike Intelligence
Unusual Uses

Ireland

Grade 5

English: Moray House English Test, 14

Irish: Special test developed for the study

Arithmetic: Schonell Essential Problem Arithmetic Test
Schonell Essential Mechanical Arithmetic Test

Philippines

Part I: Grade 3

English Proficiency Test, Form D
Listening Comprehension
Oral Expression
Reading Comprehension
Written Expression

Part II: Grade 6

English Proficiency Test, Form E
Listening Comprehension
Reading Comprehension
Mechanics of English
Oral Expression

English Language Test
Usage
Spelling
Capitalization and Punctuation

English Reading Test
Vocabulary
Paragraph Comprehension

Tagalog Reading Test
Vocabulary
Paragraph Comprehension
Sentence Writing

Social Studies Test (in English, Tagalog and
bilingual versions)

Health and Science Test (in English, Tagalog, and
bilingual versions)

Arithmetic Test (in English, Pilipino, and
bilingual versions)
Computation
Problems

Mexico

Grade 3

Group Test of Reading Comprehension in Spanish

Nigeria

Grade 4

English Language:

Spelling
Word Recognition
Listening Comprehension
Word-Picture Matching
Morphology
Cloze
Word Understanding
Reasoning
Reading Comprehension
Composition

Yoruba Language

Word Pronunciation
Oral Reading
Greetings
Accents
Word Arrangement
Oral Comprehension
Idioms
Similes
Proverbs
Words in Sentences
Antonyms
Concept-Word Differentiation
Sounds
Silent Reading Comprehension
Sentence Arrangement
Passage Arrangement
Sentence Completion
Composition
Letter Writing
Cloze

Social and Cultural Studies

Common Content (Yoruba and English versions)
New Syllabus (Yoruba and English versions)

Science

Common Content (Yoruba and English versions)
New Syllabus (Yoruba only)

Mathematics

Common Content (Yoruba and English versions)
New Syllabus (Yoruba and English versions)

Nigeria (continued)

Intelligence

Raven's Progressive Matrices

Sweden

The UNESCO Study (Olofstrom and Gothenburg)

Finnish tests:

Thurstone Primary Mental Abilities

Picture Vocabulary

Synonyms

Word Groups

Perceptual Speed

Addition

Heinonen's Series

Synonyms

Word Groups

Logical Order

Sentence Completion

Word Analogies

Mathematical Tasks

Addition

Swedish Tests

Westrin WIT Battery

Verbal tests

Reading Maturity

Classification

Picture Reasoning

DPI Battery (Ekstrand)

Oral Comprehension

Written Comprehension

Dictation

U.S.

Rock Point Navajo School

English

Stanford Achievement Test, 1973

Word Study Skills
Reading Comprehension
Total Reading

Metropolitan Achievement Test, 1971

Word Knowledge
Reading Comprehension
Total Reading

Arithmetic

Stanford Achievement Test, 1973

Computation
Application
Concepts
Total Arithmetic

English Proficiency

Test of Proficiency in English as a Second Language (TOPEL)

Listening Comprehension
Structure

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